On the Situation of Traditional Textile Producers in Mexico: General Overview for Supply Chain Improvements

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Abstract— In recent years the textile industry in Mexico has faced significant competition from large foreign enterprises. Particularly, artisan producers of traditional textile goods may have an opportunity to grow within this context. However, in order to succeed, some important practices of supply chain management and business administration should be considered by these micro-entrepreneurs. This paper presents a general overview about the limitations and opportunities of traditional textile producers in Mexico. The need to incorporate practices of supply chain management is discussed.

Keywords—textile artisan goods; micro-enterprises; supply chain management

I. INTRODUCTION

According to the National Institute of Statistics and Geography of Mexico (INEGI by its name in Spanish, Instituto Nacional de Estadística y Geografía) the economic activities in Mexico are classified in the sectors presented in Figure 1. It is noted that three main industries concentrate the most of the economic entities (enterprises) and working force (employees) in Mexico: Commerce, Services, and Manufacturing [12, 14].

 Fig. 1. Sectors of the Mexican economy.

In Mexico an economic or business entity can be classified based on its size as a micro, small, medium, or large enterprise [14]. In Table I a review of the ranges used to perform this classification is presented for the main industries shown in Figure 1.
Based on the economical census of 2009 [12] approximately 95.5% of the enterprises in Mexico are micro-enterprises (with 0 to 10 workers). These enterprises cover 45.7% of all workers in the country and contribute to approximately 15% of the global Gross Domestic Product (GDP). In contrast, small enterprises cover 14.7%, medium enterprises cover 14.7%, and large enterprises cover the 24.9% of all workers [12]. In total, micro, small, and medium enterprises (Micro, Pequeñas y Medianas Empresas, MIPYMES) represent 99% of all economic entities in Mexico and contribute approximately 50% of the global GDP [14].

For the Manufacturing sector, where 11.7% of the Mexican economic entities and 23.2% of the working people are concentrated, 92.5% of the entities are micro-enterprises. Manufacturing is considered as the economic activity that transforms a large diversity of raw materials into different consumer products. Thus, the Manufacturing sector can be integrated by micro-enterprises as tortilla bakeries (tortillerias), bakeries, mills, but also by large enterprises as car assembly plants, soft drink bottlers, food packers, pharmaceutical laboratories. In this case, large enterprises concentrate 0.7% of the economic entities and 49.7% of the working people in the Manufacturing sector [12]. In Figure 2 the industries in this sector are presented together with their contribution to the manufacturing GDP [11].

As presented, the manufacturing industry that contributes more to the sector's GDP (as of 2009) is the industry of food, beverages, and tobacco with 27.9%. This work is focused on the micro-enterprises of the Textiles, Clothing and Leather industry which accounts for the 4.1% of the sector's GDP. In particular, the situation of the artisan industry. This is because the micro-enterprises, although large in number, have been reported to have a small period of life, being two years the average lifespan of MIPYMES [20].

Some of the main causes of failure for micro-enterprises can be mentioned:

- There is no investment habit to achieve improvements in production (for example, update equipment or purchase new tools). This was more evident in the textile and mineral industries [7].
- Most micro-enterprises are based on self-employment. Therefore management capacity is uncertain and the entrepreneurs learn about the business on-the-fly [6,8].
• The goals, objectives, protocols, organizational structure and operating manuals are not considered during the planning of the business [17]. There is no product research or considerations of demand forecasting.

• Most of the micro-enterprises are founded as a family business where economic resources are limited and come from personal savings [9,17].

• The shares of each employee in the company (employee, shareholder, etc.) are not defined or established. Particularly, in family businesses, control hierarchies are not respected. Therefore, the opinion of a relative of the owner of the enterprise, with lack of training or experience, can be more important than the opinion or advice of a qualified person (not related to the family) who has been hired to manage the business. There is a difficulty to set limits related to family ties and the control hierarchies [15].

• A long-term and reliable network of committed providers to the goals of the enterprise is not kept or pursued. No alliances are implemented to buy or store product (thus reducing costs).

• There are no plans to analyze sales strategies or perform effective dissemination of the product or services provided by the enterprise.

Besides these problems which are inherent to the micro-enterprises other situations as illegal imports of textile goods, non-registered trading, informal enterprises, and smuggling have affected the survival rate of textile micro-enterprises. In this situation Supply Chain Management (SCM) can improve the creation and distribution processes for products and services provided by these micro-enterprises. The Supply Chain includes providers, storage of raw material, production lines, storage of end products, distribution channels and logistics, marketing, development of new products, wholesalers and retailers, etc. All functions within the Supply Chain are focused on delivering a product to a client with the highest standards of quality and time [3].

II. TRADITIONAL TEXTILE PRODUCTS

Most enterprises in Mexico are classified as micro and medium enterprises, and many of them are conceived as family businesses. To improve the performance of these micro-enterprise, models and proposals have been presented in the literature for process planning, logistics [2], and general best practices [16]. However there is a branch of the textile industry that has not been studied extensively: micro-enterprises that make traditional textile goods.

But, what is a traditional textile craft or product? A product is generally regarded as "traditional" when the value added in its production or extraction process is not important enough to transform its natural essence [23]. The concept of "craft" is included in the traditional product as it is produced by a craftsman using either just his/her hands or power tools. The conception of art and unique work occurs in handicrafts. Usually these products are made using raw materials from sustainable and / or regional resources. In Figure 3 some examples of these products are shown.

![Fig. 3. Examples of traditional textile products.](image_url)

An advantage of MIPYMEs that make these products is that they can make creative designs, diversifying their styles [18,21]. Finding ways to increase production capacity and provide efficient response to the client’s needs is important for these enterprises because many of them want to have more presence in the national market (and also in the international market). Within this context of globalization, customers need a fast and personalized response [4].
While most of MIPYMEs in the textile industry have the problems discussed in Section I, those that make traditional products have others that must be considered in a special way:

- The raw materials are required to go through processes that do not compromise their integrity in order to maintain the condition of "traditional" and / or "artisanal". From the ecological point of view these materials can provide greater economic benefits [18]. However, these materials usually must be produced locally by other entrepreneurs and frequently there are no specific suppliers for some raw materials like wool [5]. Especially wool, if it does not come from a certain breed of animal, it can affect the quality the final product.

- The micro-enterprises that make these products are usually located in rural areas with limited access. SCM for raw material should consider this situation.

- The social component in rural areas is important for the planning of the micro-enterprise. This is because there are communities where the government and the assignation of roles in a family enterprise are based on "customary laws" [19]. This can affect the conventions that are usually considered in standard planning schemes (allocation of command positions, decision making, etc.).

III. DISCUSSION

The conditions presented in Section II provide support to the need for an SCM model for family micro-enterprises of traditional textile goods. Some actions to be considered for a successful implementation of SCM are mentioned as follows:

- Determine the critical success factors (Critical Success Factors, CSFs) concerning these micro and small enterprises in Mexico [13].

- Set the tools (methods) and production planning requirements more related to the stages of the micro-enterprise (for example, line balancing methods, production capacity, identification of tasks and dependency relationships) raw materials.

- Likewise, do an adaptation of these tools to make them easier to implement for the micro-enterprise.

- Establish criteria and methods of evaluation and selection of raw materials, suppliers, and labor for artisanal textiles. Similarly consider the conditions for storage of raw material and product.

- Propose planning strategies for production lines and their delivery times to have control over their distribution, making them more efficient. For this purpose, the delivery paths and routes most consider the particular geographical aspects of rural locations.

- Propose communication strategies and vendor management practices to improve the supply of raw materials within the respective social context (promoting values of commitment and collaboration between producers and suppliers) [22].

- Given the nature of raw materials a sustainable approach to the supply chain is considered important [10].

- Establishing quality controls for textiles without compromising its integrity.

- Establish organizational planning strategies for workers and their roles within the family business.

- Propose a production scheme that facilitates the production of large quantities while respecting their artisanal characteristics. This does not imply standardization which may cause the artisanal product to lose their added value, or to lose their "unique" (traditional) aspect. It is intended that the logistics and supply chain add significant value to the customer [1].

- Establish simulation methodologies to support the planning of these MYPYMEs [18] (e.g., simulation methodologies for Arena or Promodel).

REFERENCES


